



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,813	09/17/2003	Junichi Nakamura	117212	4050

25944 7590 06/28/2005

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

PIZIALI, JEFFREY J

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,813

Applicant(s)

NAKAMURA, JUNICHI

Examiner

Jeff Piziali

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/8/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 2, 3, 6, 13, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 2 recites the limitation "the phase-inversion signal" in line 5. There is insufficient antecedent basis for this limitation in the claim.
5. The term "approximate center potential" in claims 3 and 13 is a relative term which renders the claim indefinite. The term "approximate center potential" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. One skilled in the art would be unable to ascertain how close to the center a potential could potentially be before being considered the approximate center potential.

6. Claim 6 recites the limitation "the third driver circuit" in line 2. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 13 further recites the limitation "one-half cycles" in line 8. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 15 recites the limitation "the sub-frames" in lines 6-7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-10 and 12-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Murata et al (US 6,876,348 B2).

Regarding claim 1, Murata discloses an optoelectronic-device substrate, comprising: a memory-cell array [Fig. 3; 200] including a plurality of memory cells that is arranged in matrix form and digitally driven; and a pixel electrode [Fig. 3; 100] to retrieve pixel data stored in the memory cells as an electrical signal (see Column 3, Lines 23-36); each of the memory cells

Art Unit: 2673

having a phase-inversion circuit [Fig. 4; 15, 16] to invert the phase of transmitted pixel data (see Column 4, Lines 1-50), and a data-inversion signal [Fig. 5; "Pixel" signal] having a phase that is inverted by the phase-inversion circuit being transmitted to the pixel electrode (see Column 4, Line 51 - Column 6, Line 52 -- in particular, Column 4, Line 64 - Column 5, Line 12).

Regarding claim 2, Murata discloses each of the memory cells including: a storage unit [Fig. 4; 200] to store the pixel data; a first analog switch [Fig. 4; SW-A] to generate the data-inversion signal, based on the phase-inversion signal [Fig. 4; SW-A control signal]; and a second analog switch [Fig. 4; SW-B] to switch between the data-inversion signal [Fig. 5; 5-to-10 volts] from the first analog switch and a zero-data signal [Fig. 5; 5.5-to-9 volts]; the data-inversion signal being selected when the pixel data is stored in the storage unit [Fig. 5; SRAM driving mode], and the zero-data signal being selected when the pixel data is not stored in the storage unit [Fig. 5; normal/writing mode] so as to be transmitted to the pixel electrode (see Column 5, Lines 13-67).

Regarding claim 3, Murata discloses the phase of the data-inversion signal being shifted so that the potential of the data-inversion signal is switched between the plus side and the minus side with reference to the potential of the zero-data signal as an approximate center potential (see Fig. 5; Column 5, Lines 13-67).

Regarding claim 4, Murata discloses the storage unit being formed as an SRAM (see Column 3, Lines 60-67).

Regarding claim 5, Murata discloses the memory-cell array including: a plurality of first signal lines [Fig. 3; 17] to connect one group of address terminals included in one group of the memory cells in parallel, the one group of the memory cells being provided along a row direction; a plurality of second signal lines [Fig. 3; 11] to connect one group of data terminals included in one group of the memory cells in parallel, the one group of the memory cells being provided along a column direction; and a plurality of third signal lines [Fig. 3; 18] to connect one group of phase-inversion terminals included in one group of the memory cells in parallel, the one group of the memory cells being provided along the row direction or the column direction; and the optoelectronic-device substrate further including: a first driver circuit [inherent but not illustrated] to transmit address signals in sequence to the memory cells via the plurality of first signal lines, the memory cells being provided along the row direction; a second driver circuit [Fig. 3; 19] to transmit the pixel data to the memory cells at one time via the plurality of second signal lines, the memory cells being provided along the column direction; and a third driver circuit [inherent but not illustrated] to transmit phase-inversion signals to each group of the memory cells via the plurality of third signal lines, the group of the memory cells being provided along the row direction or the column direction (see Column 3, Lines 23-59).

Regarding claim 6, Murata discloses the third driver circuit having a phase-inversion circuit [Fig. 4; 15, 16] to invert the phase of the pixel data, and the phase-inversion circuit inverting the phase of the pixel data before the pixel data is transmitted to the memory cells (see Fig. 5; Column 4, Line 51 - Column 5, Line 30).

Regarding claim 7, Murata discloses the memory-cell array including: a plurality of first signal lines [Fig. 3; 17] to connect one group of address terminals included in one group of the memory cells in parallel, the one group of the memory cells being provided along a row direction; a plurality of second signal lines [Fig. 3; 11] to connect one group of data terminals included in one group of the memory cells in parallel, the one group of the memory cells being provided along a column direction; and a plurality of third signal lines [Fig. 3; 18] to connect one group of phase-inversion terminals included in one group of the memory cells in parallel, the one group of the memory cells being provided along the row direction or the column direction; and wherein the optoelectronic-device substrate further including: a row-address-decoder driver circuit [inherent but not illustrated] to transmit row-address data for selecting any of rows of the memory cells via the plurality of first signal lines, the memory cells being provided along the row direction; a column-address-decoder driver circuit [Fig. 3; 19] to transmit column-address data to select any of columns of the memory cells via the plurality of second signal lines, the memory cells being provided along the column direction, and the pixel data output to the memory cells designated by the row-address data and the column-address data; and a phase-inversion driver circuit [inherent but not illustrated] to transmit a phase-inversion signal to each group of the memory cells via the plurality of third signal lines, the each group of the memory cells being provided along the row direction or the column direction (see Column 3, Lines 23-59).

Regarding claim 8, Murata discloses the phase-inversion driver circuit having a phase-inversion circuit [Fig. 4; 15, 16] to invert the phase of the pixel data, the phase-inversion circuit inverting the phase of the pixel data in a predetermined cycle regardless of the number of the memory cells whose display information is rewritten according to the pixel data (see Fig. 5; Column 4, Line 51 - Column 5, Line 30).

Regarding claim 9, Murata discloses a digitally-driven liquid-crystal display, comprising the optoelectronic-device substrate; a counter substrate [Fig. 4; 12]; a liquid crystal layer [Fig. 4; 14] provided between the optoelectronic device substrate and the counter substrate; and a common electrode [Fig. 4; 13] to supply a voltage having a potential [Fig. 5; 5-to-10 volts] that is equivalent to the potential of zero data transmitted to the optoelectronic-device substrate (see Fig. 5; Column 4, Line 51 - Column 5, Line 30).

Regarding claim 10, Murata discloses an electronic apparatus, comprising the digitally driven liquid crystal display; and a display unit to display an image through the digitally-driven liquid-crystal display (see Column 3, Lines 15-20).

Regarding claim 12, Murata discloses a method of driving an optoelectronic-device substrate that includes a memory-cell array [Fig. 3; 200] including a plurality of memory cells that is arranged in matrix form along a row direction and a column direction and that is digitally driven, and a pixel electrode [Fig. 3; 100] to retrieve pixel data stored in the memory cells as an electrical signal, the method comprising: performing at least one of inverting the phase of the

Art Unit: 2673

pixel data before the pixel data is transmitted to the memory cells, and inverting the phase of the pixel data after the pixel data is transmitted to the memory cells (see Column 4, Line 64 - Column 5, Line 12).

Regarding claim 13, Murata discloses the performing including: subjecting the pixel data to pulse-width modulation [see Fig. 5], dividing one frame into a plurality of sub-frames, determining the potential of the zero-data signal [Fig. 5; 5.5-to-9 volts] as an approximate center potential, and shifting the potential and phase of the pixel data to the plus side and the minus side so that display data in the sub-frames is shifted [Fig. 5; 5-to-10 volts] with about one-half cycles (see Column 4, Line 51 - 5, Line 12).

Regarding claim 14, Murata discloses the performing including selecting the memory cells provided along the row direction in sequence, and inverting the phase of the pixel data at the same time (see Fig. 5; Column 4, Line 64 - Column 5, Line 12).

Regarding claim 15, Murata discloses the performing including transmitting a cycle with which the phase-inversion signal to the memory cells provided along the row direction, and making a cycle with which the pixel data is transmitted to the memory cells provided along the row direction variable so that the cycles can change [see Fig. 5] in synchronization, whereby a cycle of the sub-frames is made variable so as to present gray scale [i.e. tone levels, white, black, brightest white, and darkest black] (see Column 4, Line 64 - Column 5, Line 30).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murata et al (US 6,876,348 B2).

Regarding claim 11, Murata discloses a control circuit to control the digitally-driven liquid-crystal display (see Column 3, Lines 23-36); but does not expressly disclose a projector. However, it was well known and commonly understood at the time of invention to use a digitally-driven liquid-crystal display as projector, comprising: a light-source unit to supply projection light; and a projection-lens system to magnify and project an image of the digitally-driven liquid-crystal display. Therefore, it would have been obvious at the time of invention to one skilled in the art to use Murata's optoelectronic substrate within such a projector, so as to provide an imaging device for a large audience, while keeping display manufacturing costs and power consumption low.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamasaki (US 2002/0060660 A1), Nakamura et al (US 6,801,193 B2), Yamazaki et al (US 6,765,549 B1), Huang (US 6,731,272 B2), Nakamura (US 6,563,480 B1), Akiyama et al. (US 5,977,940 A), Akiyama (US 5,952,991 A), Koyama (US 5,798,746 A), Sato et al (US

Art Unit: 2673

5,712,652 A), and Parks (US 5,471,225 A) are cited to further evidence the state of the art pertaining to optoelectronic devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J.P.

14 June 2005



BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600